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NAVY EXPERIMENTAL DIVING UNIT PANAMA CITY FLA
PRESSURE TEST OF EXTENSION LIGHT, (U)

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MAY 60 G M JANNEY
NEDU-EVALUATION-16-60

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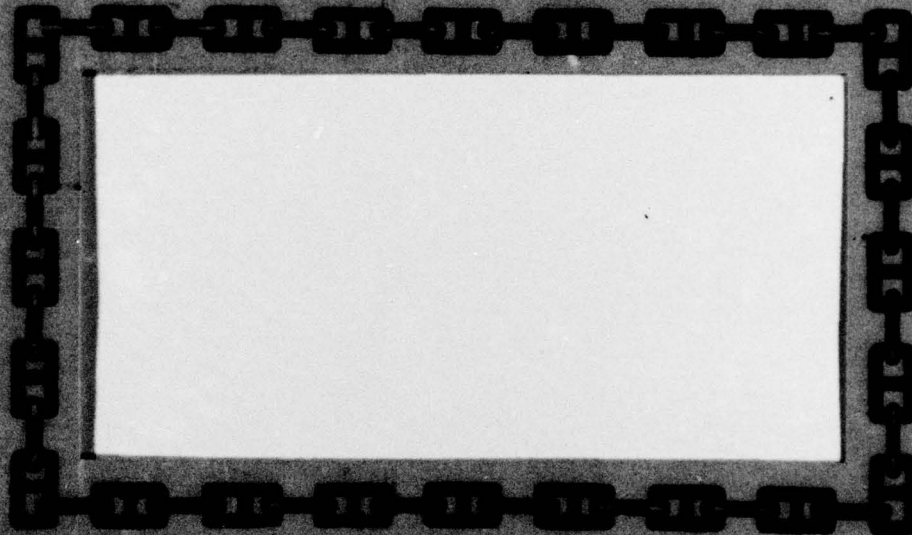
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(6) PRESSURE TEST OF EXTENSION LIGHT
PROJECT NS185-005 SUBTASK 3 TEST 9

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CONDUCTED BY:

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ABSTRACT

An extension light was given an underwater pressure test to determine whether it is a suitable substitute for the medium pressure underwater light which is part of the Diving Equipment Set, Outfit No. 1.

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SUMMARY

PROBLEM:

To determine if the standard extension light (Stock Number HF6230-284-0296) is a suitable substitute for the medium pressure underwater extension light (Stock Number G6230-267-8130)

FINDINGS:

The standard extension light is suitable for depths of 150 feet of water and is a suitable substitute for the medium pressure underwater light provided that 200 feet of cord is furnished.

RECOMMENDATIONS:

The standard light should be accepted as a suitable substitute for the medium pressure underwater light.

ADMINISTRATIVE INFORMATION

Ref: (a) U. S. Navy Diving Manual (NAVSHIPS 250-538)

(b) Telcon between M. J. Foran (BuShips Code 638) and LTJG
G. M. Janney (EDU) on 7 July 1959

Reference (a) states that a medium pressure extension light is available for use by divers. This light is issued as part of Diving Equipment Set, Outfit No. 1 and has Stock Number G6230-267-8130 in the Standard Stock Catalogue. By reference (b), the Bureau of Ships established a project to determine whether a similar light, listed under Standard Stock Number HF6230-284-0296 (changed from HF6230-353-6505), is a suitable substitute for the diving extension light. Project Number NS185-005 Subtask 3 Test 9 was assigned.

J. J. Sirotniak, BM2(DV), USN was assigned as Assistant Project Engineer. Work commenced on 1 April 1960 and was completed on 29 April 1960. The following breakdown indicates the manhours expended for this project:

<u>DESCRIPTION</u>	<u>MANHOURS</u>
Testing	12
Report preparation	3
Clerical	3
TOTAL	18

Charges incurred in the execution of this project were lodged against allotment 17102/60.

This report is issued in the Experimental Diving Unit Evaluation Report series and is distributed only by the Bureau of Ships. This is the first report under project number NS185-005 Subtask 3 Test 9.

TABLE OF CONTENTS

COVER PAGE	1
ABSTRACT	ii
SUMMARY	
Problem	iii
Findings	iii
Recommendations	iii
ADMINISTRATIVE INFORMATION	iv
TABLE OF CONTENTS	v
INTRODUCTION	
1.1 Background	1
1.2 Objective	1
1.3 Scope	1
DESCRIPTION	
2.1 Divers' light	1
2.2 Standard light	1
PROCEDURE AND RESULTS	
3.1 Pressure tests	2
CONCLUSIONS AND RECOMMENDATIONS	
4.1 Conclusions	2
4.2 Recommendations	2

1. INTRODUCTION

1.1 Background

1.1.1 The U. S. Navy Diving Manual (NAVSHIPS 250-538) states that a medium pressure underwater extension light is available for use by divers. This light is part of the Diving Equipment Set, Outfit Number 1 and is carried in the Navy Standard Stock System under Stock Number G6230-267-8130. The Diving Manual further states that the light is suitable for use to depths of 150 feet of water.

1.1.2 The Bureau of Ships is interested in determining whether a similar light, available from the Standard Stock System under Stock Number HF6230-284-0296, is a suitable substitute for the divers' extension light.

1.2 Objective

1.2.1 The objective of this evaluation is to determine whether the extension light (Stock Number HF6230-284-0296) is suitable for use by divers to depths of 150 feet of water.

1.3 Scope

1.3.1 The evaluation was restricted to pressure tests of the extension light to determine the waterproof characteristics of the cord and socket.

2. DESCRIPTION

2.1 Divers' light

2.1.1 The medium pressure underwater extension light for divers consists of a medium base lamp (100 watt photoflood is recommended and is furnished as part of the light), a rubber socket for making a watertight seal, a wire guard for the lamp, and 200 feet of waterproof cable.

2.2 Standard light

2.2.1 The standard extension light is similar in description to the divers' extension light with the exception that the cord length is only 50 feet and no lamp is furnished with the light.

3. PROCEDURE AND RESULTS

3.1 Pressure tests

3.1.1 Five pressure tests were made in the pressure tank at the Experimental Diving Unit. The bulb and socket were immersed in fresh water throughout each test. The power was not turned on until after the bulb and socket had been immersed to prevent shattering due to thermal shock.

3.1.2 Two different types of bulbs were used; an ordinary 200 watt medium base bulb and a 375 watt medium base photoflood lamp. In two 3-hour tests at 150 feet of water the 200 watt bulb burned normally throughout the entire test period. Two tests of the 375 watt photoflood bulbs were terminated due to failure of the bulb; one imploded after 19 minutes at 150 feet of water and the other went out at 40 feet after only 40 seconds of pressurization due to water leakage into the bulb. A third 375 watt photoflood burned normally during two 1-hour tests at 150 feet.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

4.1.1 The standard extension light (Stock Number HF6230-284-0296) is suitable for use by divers to depths of 150 feet of water if 200 feet of cord is provided instead of the present 50 feet of cord.

4.1.2 The recommended 100 watt photoflood lamp would probably be less subject to pressure failure than the larger 375 watt lamp since the surface area of the 100 watt lamp is less. Further testing of lamps is beyond the scope of this project.

4.2 Recommendations

4.2.1 It is recommended that the extension light (Stock Number HF6230-284-0296) be accepted as a suitable substitute for the medium pressure underwater extension light (Stock Number G6230-267-8130) provided that 200 feet of cord is furnished.

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Security Classification

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